

# ***Tundra Treatment Guidelines***

A Manual for Treating  
Oil and Hazardous Substance Spills to Tundra

Third Edition

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ABR, Inc.—Environmental Research & Services



Alaska Department of Environmental Conservation

Division of Spill Prevention and Response  
Prevention and Emergency Response Program

Fairbanks ♦ Anchorage ♦ Juneau ♦ Palmer

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*Tundra Treatment Guidelines* may be copied, in any format, for all uses excluding those for profit. Readers also may visit the on-line version of this manual at:  
<http://www.dec.alaska.gov/spar/perp/ttman>.

Alaska Department of Environmental Conservation welcomes suggestions for improvements that will be considered for future editions. A form is available for submitting corrections, updates, or refinements (see page ix).

2d edition, February 2005, by Angela E. Miller.  
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1st edition, June 2001, by Patrick Athey,<sup>1</sup> Dawn Reeder,<sup>1</sup> Jim Lukin,<sup>2</sup> Jay McKendrick,<sup>3</sup> Jeffery S. Conn<sup>4</sup>

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# Disclaimer

There are always conditions unique to a site and incident that are beyond the control of persons responding to a spill, and that may affect treatment performance. Accordingly, using this manual will not guarantee specific results. Safety of site workers, the public, and wildlife is the highest priority in all situations and should supersede all other considerations during a response operation. Detailed information about safety requirements and procedures are not provided in this manual. Individuals should consult their company's safety officers to ensure compliance with federal, state, and local regulations.

Some of the information in this manual is adapted from the *Alaska Clean Seas Technical Manual*. Alaska Clean Seas (ACS) believes that the information and procedures contained in the ACS *Technical Manual* are well founded; many of the procedures are based on actual experiences in the environments where these procedures are intended to apply. Nonetheless, ACS and its members expressly disclaim that the procedures provided in the ACS *Technical Manual*, even if followed correctly and competently, will necessarily produce any specific results. Implementation of the recommendations and procedures contained in this manual and the ACS *Technical Manual* is at the sole risk of the user.

The most recent version of the ACS *Technical Manual* can be downloaded for free from the ACS website (<http://www.alaskacleanseas.org>).

# Foreword

*Tundra Treatment Guidelines* is a manual published by the State of Alaska Department of Environmental Conservation (ADEC), Division of Spill Prevention and Response, Prevention and Emergency Response Program. This manual provides standard operating guidelines for responding to spills of oil and other contaminants on Alaska's North Slope. ADEC has three main objectives for any tundra cleanup: 1) minimizing damage to the tundra from the spilled material; 2) minimizing damage to the tundra from the response actions, and 3) minimizing the time period for tundra to recover. ADEC acknowledges that the ecological damage from the cleanup can be greater than the deleterious effects of the residual contamination. Helping responders strike a balance between these objectives is the primary goal of this manual.

This manual emphasizes strategies that will reduce the toxicity, mobility, and volume of spill residuals in tundra, and that will allow revegetation, control risks to wildlife, aquatic, and human receptors, and protect tundra soils from physical damage and induced thermal effects. This manual provides a menu of tactics for spills of crude oil, diesel fuel, gasoline, saline waters and substances, drilling muds and fluids, and synthetic fluids after initial response efforts have eliminated the threat of large-scale spill migration. Tactics are labeled according to their purpose: P (Planning), CR (Contaminant Recovery), TR (Tundra Rehabilitation), and AM (Assessment and Monitoring). An extensive bibliography of references used to determine the appropriateness and effectiveness of various treatment tactics is included at the end of the manual.

This manual is based on over 35 years of combined industry, university, and government agency experience with tundra spills and field experiments on Alaska's North Slope. It is a living document that is under constant review and revised as additional information from research and future spill events becomes available. The most recent version of this manual can be downloaded for free from the ADEC's website (see the Guidance & Forms section of the Prevention and Emergency Response Program; Readers also may visit the on-line version of this manual at: <http://www.dec.alaska.gov/spar/perp/ttman>). The first edition of the manual was published in 2001. The on-line version of the manual was revised in 2005. The 2010 version of the manual is the third edition.

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## **A Manual for Treating Oil and Hazardous Substance Spills to Tundra**

### **REVISION FORM**

Alaska Department of Environmental Conservation (ADEC) requests that users of this manual provide notification of any errors or suggest revisions for use in future updates. If you would like to submit information, please photocopy and complete this form. It is designed to copy easily onto an 8.5" x 11" sheet. Please send the completed form to:

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Prevention & Emergency Response Program  
610 University Avenue  
Fairbanks, Alaska 99709-3643  
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Tactic: \_\_\_\_\_

Change: \_\_\_\_\_

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Source of Information for Change: \_\_\_\_\_

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Name of Person Submitting Change: \_\_\_\_\_

Organization: \_\_\_\_\_

Telephone: \_\_\_\_\_

Date: \_\_\_\_\_

Users also may visit the on-line version of this manual at

<http://www.dec.alaska.gov/spar/perp/ttman>

and submit suggestions by e-mail, [decttgcomments@alaska.gov](mailto:decttgcomments@alaska.gov).

*Thank you for helping ADEC maintain its technical manual and bring it up-to-date!*